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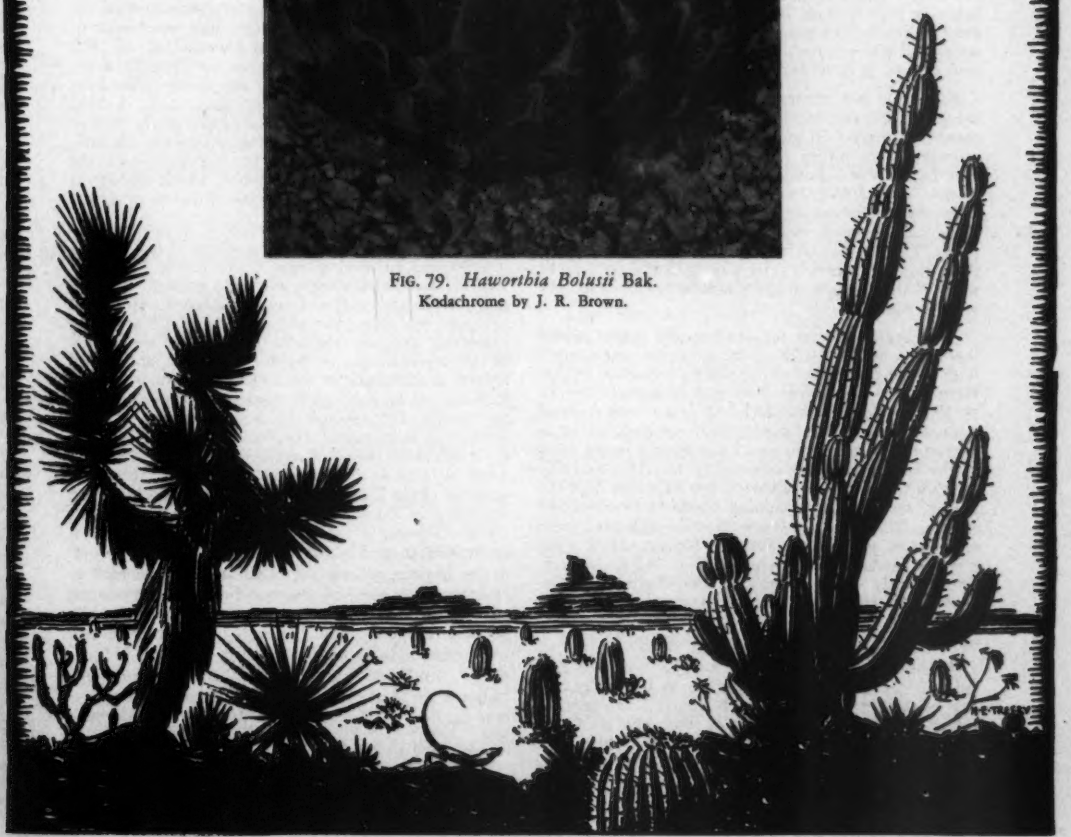
CACTUS AND SUCCULENT JOURNAL

Of the Cactus And Succulent Society Of America

Vol. XX AUGUST, 1948 No. 8

FIG. 79. *Haworthia Bolusii* Bak.
Kodachrome by J. R. Brown.



CACTUS AND SUCCULENT JOURNAL

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INTERESTING ARIZONA

By HOWARD E. GATES

Our Forty Nine Convention will be held in Arizona, a state of countless scenic attractions. Many think of it only as a state of bare desert and great heat inhabited mostly by rattlesnakes and gila monsters. True enough, the low southwestern corner with its expanses of barren wastes, broken only by low ranges of rugged mountains may justify to an extent, this impression. In fact there is a story amongst the old timers that a fellow who lived in one of the villages in this section, died and went to the wrong place. Shortly afterward a friend met him on the street and was informed that the wrong place was so cool he had to come back for his blankets.

From this low corner, the state gradually rises to the north and east to high upland country and higher mountain ranges. In places there is the driest of dry country, grassy range land, brush covered hills and pine forests where lumbering is a flourishing industry. Almost any climate except dripping tropical jungle types may be found wtihin the borders of the state. Arizona's prosperity depends largely on the four C's: Cattle, Copper, Cotton and Climate. Why dwell upon these things when this story was started to tell you of some of the scenic wonders you will see on your convention tour.

Let's begin over in the southeastern corner where there is a vast territory of cattle ranges interspersed with fertile valleys and mine studded mountain ranges. Here in the Chiricahuo National Monument known as The Wonderland of Rocks. It is an area forested with oaks and pines above which myriads of rocks project their fantastic forms. Here too are found some of the largest and most colorful of the Arizona Rainbow Cactus. A little farther south near the Mexican border, are the famous mining towns of Dougles and Bisbee. Still farther west are the mile high twin cities of Nogales, gateways to Western Mexico. More westerly yet beyond the immense Papago Indian Reservation in truly desert country, is the Organ Pipe National Monument established to preserve the best stands of *Lophocereus Schottii* and *Lemaireocereus Thurberi* to be found in the United States.

A little more than an hour's drive north of Nogales, is the ancient city of Tucson. A few miles outside of the city is the Saguaro National Monument set up to preserve a fine forest of the Arizona Giant Cactus. There are all kinds of names for this plant, ranging from the official one of *Carnegiea Gigantea* through Sahuaro to Suwarro with your own choice of spellings. This largest member of the cactus family to be found in this country, ranges almost every place in the southwestern quarter of Arizona that is below the twenty-five hundred foot level. Associated with them are giant stands of Chollas (Cylindrical Opuntias), padded Opuntias and occasionally clavate prostrate types. In the protection of the larger types are often found Mammillarias, Coryphanthas, Echinocereus and Ferocactus. But why tell you all about cactus now! We need material for another story.

Near Tucson are several in the chain of missions built by the Spanish missionary explorers around the year 700. Mission San Xavier, just southwest of Tucson, is said to be the most beautiful of all. Off the highway leading from Tucson to Phoenix is the mining town of Superior and the Boyce Thompson Southwestern Arboretum. This Arboretum, located in an extraordinarily picturesque canyon at the foot of Picket Post Mountain, will be the setting for our Convention's final gathering. The highway over the mountains from Superior to Globe, winds through a narrow canyon that is a delight to all lovers of mountain scenery.

Phoenix is as modern a city as there is in the land. It is located on level ground in the fertile Salt River Valley. Irrigation canals as large as many streams called rivers, water the surrounding farms. Here will be found the date palm of commerce, the orange, the grapefruit and the oleander growing in abundance. In the suburban area to the north and east, are rugged ranges of hills and to the south is South Mountain Park said to be the largest municipally owned park in the world. Off toward the eastern skyline are the mysterious Superstition Mountains where we will enjoy a field trip. Most of our Convention Sessions and meals will be in the Webster Auditorium, the headquarters of the Desert Botanical Garden which in turn is located in Papago Park, just off the main highway, eight miles east of the center of Phoenix. This park is an area of rugged beauty covered with a rich natural desert growth. Along the highway from the park to Phoenix, is an array of the most luxurious auto courts in the country. We spent a night during the middle of June in one of these that will likely be chosen for convention lodging headquarters. It is located in beautifully landscaped grounds, far enough from the highway to be really quiet. The air conditioning system insured a perfect night's rest in a comfortable bed.

To be continued

FIG. 80. Trail to Mlanje Plateau with *Aloe Chabaubii* var. *Mlanjeana.*

ALOES OF NYASALAND

By HAROLD E. ANTHONY

As a member of the Vernay Nyasaland Expedition* of the American Museum of Natural History, I collected mammals in Nyasaland from May to October of 1946. Because I am interested in succulents and, as a hobby, grow what I can in my small greenhouse in Englewood, New Jersey, I was constantly on the watch for such of these plants as grew in the regions where we worked. Leonard J. Brass was the botanist of our party and a representative of the New York Botanical Garden. He is an ideal companion in the field and we had many pleasurable experiences with the Nyasaland flora.

Nyasaland is situated at the southern end of the Great Rift Valley, from approximately 9°30′ to 17° south of the Equator. This region does not possess the wealth of succulents that are to be found farther south but nevertheless those that occur are interesting examples of a flora able to thrive under adverse circumstances. The topography of Nyasaland is rugged in the main, consisting of hills and mountains with some plains and so-called plateaus on the mountain tops. Rainfall varies from better than 100 inches on the Mlanje Plateau to a small fraction of this in the hot lowlands of the Shire Valley.

The best succulent display is that of the Aloes. Mrs. Reginald Sharpe, president of the Nyasaland Succulent Society, told me that 21 different Aloes have been recorded from Nyasaland. She is an Aloe enthusiast and has a very good collection of native Aloes growing in her yard at Nasonia in the Cholo district of southern Nyasaland. She kindly supplied me with a list of the Aloes which have been found in Nyasaland, together with the localities where they have been reported.

I did not see all of the Aloes on this list because our itinerary did not cover all of Nyasaland, but our party collected or encountered perhaps half of them. This material has as yet not been identified and hence this article must often deal in general rather than specific names.

Our first field station was on the Zomba Plateau at an elevation of about 4,500 feet. Residents of Zomba, the seat of government, have

*The Vernay Nyasaland Expedition was led by Arthur S. Vernay, a trustee of the American Museum. He is a great lover of plants and has taken botanists on several of his Museum expeditions. He grows orchids and other warm climate plants at his home in Nassau, the Bahamas.

FIG. 81. Trail from Timber Depot to Mlanje shows the altitude at which *Aloe Chabaudii* var. *Mlanjeana* grows.

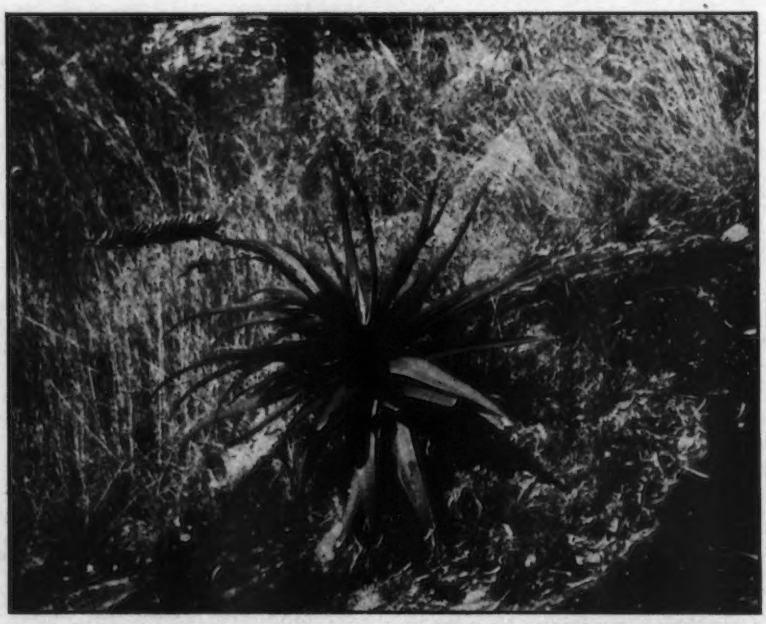

FIG. 82. Forests of *Aloe Mawii* make a spectacular picture with the inflorescence of thousands of plants pointing in one direction.

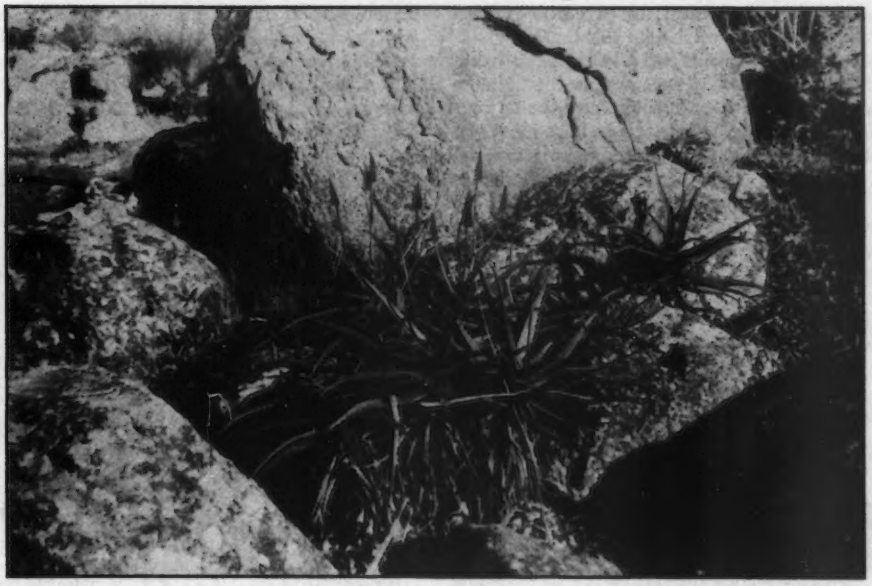

FIG. 83. Aloe species growing among rocks in the Zomba Plateau where it escapes the fire hazard.

bungalows on the Plateau and the region is a summer resort. Aloes are commonly planted as ornamentals about these buildings and one can not be certain that these are all native to the Plateau itself. One species is recorded from the Plateau and four others from nearby. I saw Aloes growing on the escarpment away from the dwellings but none on the meadow uplands. The Zomba Aloes were in flower in late May and made a beautiful show. The foliage was usually trim and the flower spikes heavily laden with yellow to red blossoms were conspicuous. These are medium-sized species, too large for small quarters but desirable for outdoor plantings because of a prolific blooming habit.

The greatest number of Aloe plants seen on the expedition was encountered at our second station, from the foot to the plateau on the top of Mlanje. Mlanje is an isolated mountain mass reaching an elevation of approximately 10,000 feet and rises from a basal plain of some 2,000 feet elevation. Heavy forest occurs on some of the lower slopes and in favored regions at 5,000 to 7,000 feet on the mountain itself. The Mlanje area has the heaviest rainfall of all Nyasaland, the greatest precipitation occurring about the summit.

In the shaded forest lands about the Likabula Timber Depot a very handsome Aloe grows here and there but not in large colonies. It is a robust, richly green form, the leaves lightly spotted with yellowish white. It carries many flower spikes, some branched, and all densely packed with light pinkish brown blossoms quite distinct from the pronounced reds and oranges usually seen on Nyasaland Aloes. The plant is acaulescent and the leaves rise almost vertically. It is one of the handsomest Aloes we saw. It needs room to grow and probably rather heavy shade.

We reached the Forestry Cottage on the Luchenya Plateau after a stiff climb of 4,000 feet along a trail that rambles over rocky slopes to avoid the sheer escarpments. On these open rocky exposures about midway up the mountain we saw scattered colonies of an Aloe with a trim growth habit, the leaf rosette somewhat vase-shaped, and with handsome flower spikes. There is very shallow soil where these Aloes grow and the plants send their roots down fissures in the rocks. It would appear that the roots serve primarily as anchors and most of the plant food must be derived from the air. There was considerable variation in the color of the flowers, reddish to yellow, but Brass believed only one species was involved because all of the plants had the same leaf pattern and growth habit.

On the upper slopes of Mlanje, on open exposed ridges at an elevation of 6,500 to 7,000 feet, we really saw Aloes. Great numbers of leggy, unkempt plants, what might be called an Aloe forest, grew in an environment quite removed from what one would describe as ideal for a plant of this nature. Crystals of ice appear after a frosty night, and even snow is reported in this region. This species grows to the height of a man but the stems are inclined to slant, the lower leaves shrivel and drop off, and the general aspect resembles that of forest at timberline. The stems bearing the inflorescence project horizontally or nearly so, and the individual plants are not nearly as attractive as the species lower down the mountain. The surprising thing is the great number of plants, thousands in sight, growing on these fog-drenched ridges, half of them with wet feet from seepage, subjected to temperatures below freezing for part of the year at least.

FIG. 84. On Chenga Hill, an Aloe somewhat resembles the Cape *A. arborescens.*

Collecting stations farther to the north made us acquainted with still other species of Aloes. On Chenga Hill, in a zone of intermediate characteristics, namely, elevation about 4,000 feet, open grassland with sparse forest in favored situations, fair rainfall but a long dry season with no rain at all, we met with several varieties quite distinct from one another. This region is annually swept by hot grass fires and the Aloes are confined, in my experience, to rocky sections where a lack of tall grass eliminates the fire hazard.

FIG. 85. Colorful Aloe with red glossy leaves observed at Kasungu by Harold E. Anthony.

One species of Aloe seen on Chenga appears as a multi-stemmed plant, a number of upright stalks closely associated as a clump, each terminating in a simple, unbranched flower spike. The leaves hold well and there is no bare underpinning as is often the case with an Aloe reaching the height of this one, eight to ten feet. The inflorescence is not very spectacular.

Another Chenga Hill Aloe is acaulescent, rather trim in foliage and with an attractive, spotted juvenile stage. Small plants of this, "pups", would be good pot subjects and could be handled in limited quarters.

By all odds the most striking and beautiful Aloe noted in Nyasaland was seen on Chenga Hill and at Kasungu where it was planted in the yard of the Rest House. It is a colonial, acaulescent type with bright red leaves which have a glossy polish as if enameled. The rosettes are of medium size and apparently the plant offsets or suckers. The short flower spike and the flowers themselves are practically the same shade of red as the leaves. It grows in dense soil which bakes

to adobe hardness in the dry season. Although the mature rosettes are too big for anything but out-size pots or small tubs, this Aloe is so unusual that it is worth considerable effort to get it into an Aloe collection. The "pups" at least would be outstanding and the plant, in bloom or without, is one that can not be overlooked.

There are several representatives of the subgenus Leptaloe but none of these came under my observation to be recognized at the time. One with thin, grass-like foliage occurs in a region where we collected but the brief search I made for it proved fruitless.

Len Brass and I photographed most of the Aloes we encountered both in color and in black and white. In addition, he collected seed and a few juveniles for the Botanical Garden, as well as herbarium material.

MRS. REGINALD SHARPE'S LIST OF ALOES RECORDED FROM NYASALAND

Aloe arborescens	Dedza Mountain.
A. Cameronii	Between Lilongwe and Dedza.
A. Cameronii	Between Fort Johnstone and Monkey Bay.
A. Cameronii	North of Fort Johnstone.
A. Cameronii	On Fort Johnstone—Balakas Road.
A. Cameronii	Namadidi Estate, Zomba.
A. Cameronii	50 miles North of Lilongwe on Kasungu Road.
A. Cameronii	Mlomba Estate, Fort Lister.
A. Chabaudii—Pink	On Tete-Villa Continho Road.
A. Chabaudii—Pink	Fort Johnstone—Balakas Road.
A. Chabaudii—Pink	Namilonge Estate, Cholo.
A. Chabaudii—Pink	Nyika Mountains.
A. Chabaudii—Pink	Blantyre—Tete Road, at intervals.
A. Chabaudii—Pink	18 miles North of Mzimba.
A. Chabaudii—Orange	Namadidi Estate, Zomba.
A. Chabaudii—Orange	Nasonia Estate, Cholo.
A. Chabaudii—Yellow	Blantyre—Tete Road, near border.
A. Chabaudii var. *Mlanjeana*—Rose Pink	Mlanje Mountain.
A. Christianii	80 miles on Tete-Villa Continho Road, a local form with green leaves and uncinate bulb.
A. Christianii	Between Lilongwe and Dedza—4500 ft. alt.
A. Christianii	Namadidi Estate, Zomba.
A. Christianii	5 miles South of Cholo.
A. Christianii	Mlomba Estate, Fort Lister.
A. Christianii	Mlanje, a form with slightly spotted leaves.
A. Christianii	Kasitu River, Ekwendeni, strong form with 2 and 3 flower stems.
A. Charlesii	Nchena-Nchena.
A. Greatheadii	Villa Continho—Tete Road.
A. Greatheadii	Cholo, the common Aloe.
A. Greatheadii	Blantyre—Tete Road.
A. Greatheadii	Port Herald District.
A. Greatheadii	Fort Lister.
A. Mawii—Arborescent, Scarlet	Zomba Plateau.
A. Mawii—Arborescent, Orange	Mlanje Plateau.
A. Mawii—Acaulescent, Scarlet	Tuchilla Plain.
A. sp. Christian No. 939	Dedza Mountain.
A. Everettiae	Blantyre—Cholo Road.
A. Everettiae	Namadidi Estate, Zomba.
A. Pienaarii	Blantyre—Tete Road 5 miles from Blantyre.
A. Duckerii	Near Livingstonia Mission.
A. Katumbensis (Burtt)	15 miles North of Katumbi, Great North Road.
A. Rangelii—Brown	Namazimu, a maculate species with 3 foot flower spike.
A. sp. (Mrs. Sharpe)—Acaulescent, Scarlet	Namweres.
A. sp. Leptoaloe Christian No. 940	Dedza Mountain.
A. sp. Leptoaloe (Mrs. Sharpe)	Top of Nyika Plateau.

NOTE: I ran across an Aloe recorded from Nyasaland not on the Sharpe list. This is *Aloe mzimbana*, type locality Mzimba, Nyasaland, figured in "Flowering Plants of South Africa," Vol. XXI, 1941, pl. 838. H. E. A.

FIG. 86. LEFT: Normal plant of *Lophocereus Schottii* which has started to change its spination on the flowering tips. RIGHT: *L. Schottii* forma monstrosus *obesus*. Haselton photo.

Report From Desert Botanical Garden

Papago Park, Arizona

By WM. TAYLOR MARSHALL

Lophocereus Schottii (Engel.) B. & R.

One way in which an experimental garden, such as ours, can prove of value to all cactophiles is to grow species and their varieties in exactly similar surroundings and determine if the variation is purely geographical or if the difference in form or flower is inherent in the plant.

While in Baja California and Sonora, *Lophocereus Schottii* and its varieties were puzzling to me and I felt that if all of the variations could be assembled in one place and grown on for a number of years their standing as varieties or good species could be determined. Here at the Garden we have grown all of the variations for eight years and we feel that we can now speak with some assurance on the subject.

Lophocereus or "crested cereus" was named with reference to the bristly tops of the flowering stems which develop clusters of long bristles to replace the few, short, awl-shaped spines of the non-flowering stems. Add to this oddity the fact that each areole produces numerous flowers instead of the usual single flower in the Cactus family and you have a most interesting plant.

Lophocereus Schottii is found over a large range in Baja California from San Quentin to La Paz, in Sonora and in southern Arizona in the Organ Pipe National Monument and its vicinity. It is an erect plant, the stems branching from the base, 50 to 100 branches have been noted. Ribs 4 to 9, usually 5 to 7, light yellowish green. The flowering stems extent above the non-flowering ones and the gray bristles of these flowering stems have earned for the plant the name "senita" or old one.

Flowers are rather small for so large a plant and are deep to light pink.

Two monstrose forms of *L. Schottii* are known, one very stout and knobby and entirely unarmed except for an occasional bristle near

the top of the stem from areoles that occasionally bears flowers. This is *forma monstrosus obesus*.

The second monstrose form was collected by Weinberg who sent the first collection to Germany where Wm. Weingart named it *Cereus Mieckleyanus* without seeing either flower or fruit. This form is *monstrosus Mieckleyanus* and it is much slimmer than the first with more indication of ribs and it forms flowering tips that are distinctly ribbed and bear large woolly areoles on the ribs and occasional bristles. This form flowers freely on stems twelve or more feet high and about three inches in diameter which, in spite of the appearance of fragility, can stand a sixty mile wind without damage.

All of these forms and varieties are growing in our garden and growing very rapidly but with no distortion, in other words they are perfectly normal.

We are now fully convinced that *Lophocereus Sargentianus* is, at best, only a variety of *L. Schottii* but we actually think it only a geographical or climatic variation for when brought into our garden it soon becomes indistinguishable from the species.

We also believe that *Lophocereus australis* deserves specific rank as does *L. Gatesii* and we hope to prove this by photos and reports in next month's JOURNAL.

Although many monstrose forms of *Lophocereus* are available there has been no fasciated form known until very recently when George Lindsay and Reid Moran found a crested plant on East San Bonito Island and presented one crested stem to our Botanical Garden.

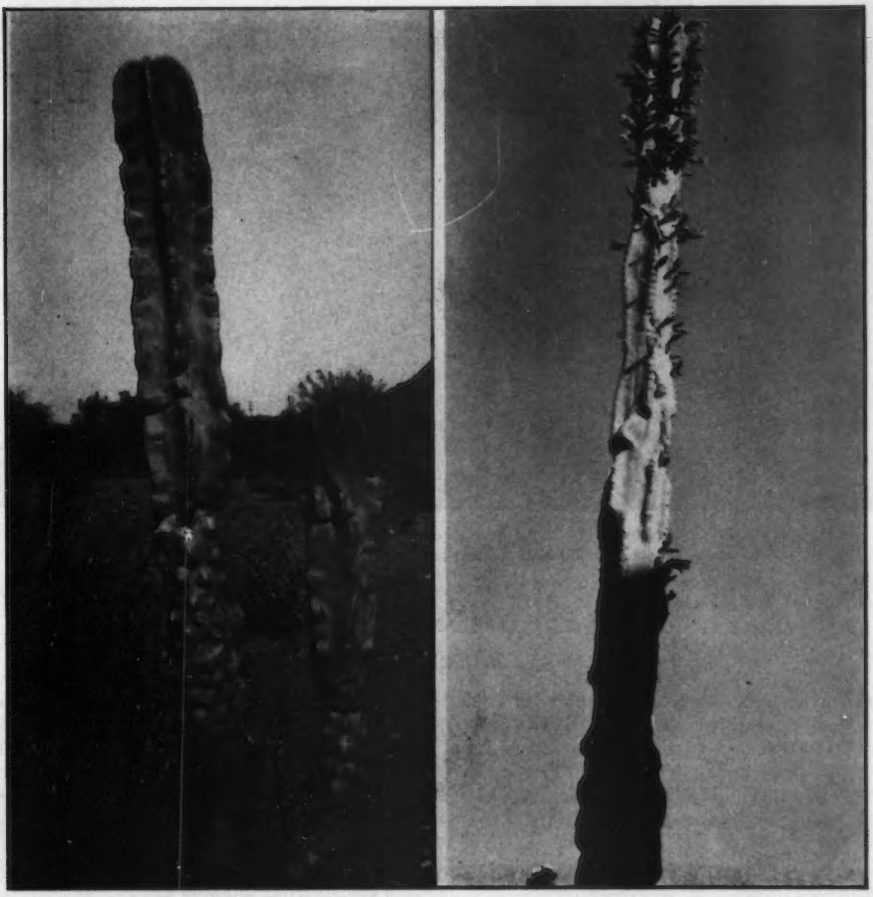

FIG. 87. LEFT: *Lophocereus Schottii* forma monstrosus *obesus* reverting to normal.
RIGHT: *Lophocereus Schottii* forma monstrosus *Mieckleyanus* showing flowering tip.

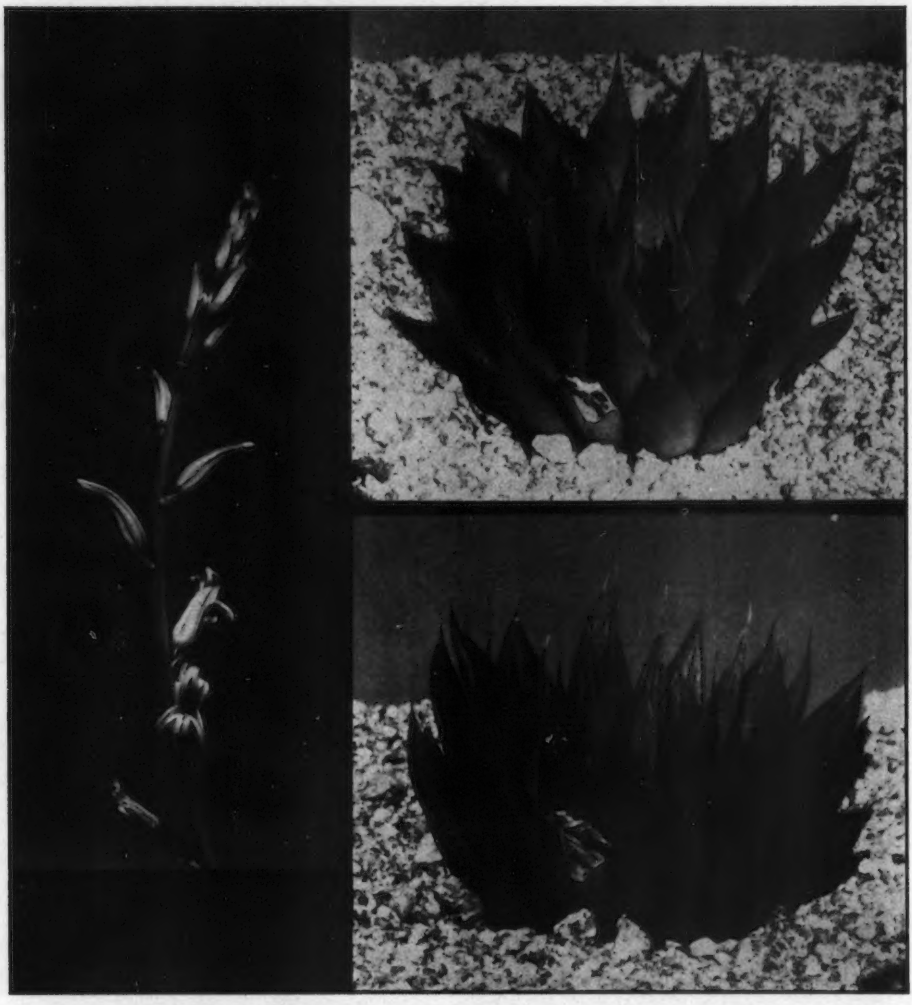

FIG. 88
Haworthia mucronata var. *polyphylla* (Bak.) Poelln. rosette and raceme. nat. size.

NOTES ON HAWORTHIAS

By J. R. BROWN

Haworthia mucronata var. **polyphylla** (Bak.) Poelln. in Repert. Sp. Nov. XLIX (1940) 29. *Haw. polyphylla* Bak. in Journ. Linn. Soc. XVIII (1880) 213, in Fl. Cap. VI (1896) 351. *Haw. altilinea* var. *polyphylla* Poelln. in Repert. Sp. Nov. XLV (1938) 169.

Plant acaulescent, 7-9 cm. in diam. with numerous leaves.

Leaves 3.5-4.5 cm. long, 10-14 mm. broad, oblong-lanceolate, acuminate, younger leaves erect, older erect-spreading, face flat, lightly convex in upper part, pale green, more or less pellucid in the upper part and with 7-9 obscure lengthwise lines; back of leaf rounded, with 9-13 obscure lengthwise lines, and with 1 or 2, rarely 3 keels in the upper part, end-bristle about 5 mm. long, margins and keels with slender, white, pellucid teeth to 2 mm. long.

Type locality: Unknown.

Introduced to England by Thos. Cooper about 1860.

Dr. von Poellnitz received a plant collected by Mr. W. E. Armstrong at Elandskop, in the vicinity of Adelaide, South Africa. The photos shown here are of a plant received by me from the same collector many years ago. This Haworthia is now 9 cm. in diam. and has 55 leaves. The teeth on the leaf margins of this plant do not exceed 1 mm. in length. Dr. von Poellnitz mentions the teeth as up to 2 mm. in length and also "to 4 mm. long, Baker." However, Baker gives the length as 1/6 lin. and this may have been misread as 1/6 in., as 1/6 of an inch equals 4 mm. The teeth on other plants of this Haworthia seen by me are all very short.

It is distinct from other forms of *Haw. mucronata* by the more numerous, narrower, and more gradually acuminate leaves.

Some brief notes on the inflorescence of this plant are given here.

Peduncle simple, stout, 25 cm. or more in height, including the raceme, pale green, subterete, about 2 mm. diam.; sterile bracts numerous (9), membranous, white, lowermost about 9 mm. long, deltoid-lanceolate, with a pale brown keel, upper 6 mm. long, with a more prominent keel; pedicels about 3 mm. long, shorter upwards, bright green; flower bracts same as upper sterile bracts; perianth 13-15 mm. long, tube obclavate, sub-trigonous, lightly curved, about 3.5 mm. diam. at widest part, white suffused green, with pale green lines; segments spreading, white, upper segment broad and sub-erect with a broad green line, 2 laterals with inflexed margins and green lines, 3 outer segments with narrower green lines, tips of upper segments faintly tinged mauve. Throat of flower green.

This Haworthia has an attractive, clear, green and white toned raceme.

Forma **minor** (Triebner) Poelln. l.c. is a smaller form of this Haworthia, with leaves 1.5-2.5 cm. long, and 4-7 mm. broad, and also collected at Elandskop, near Adelaide.

Berger treats *Haw. polyphylla* Bak. merely as a synonym of *Haw. altilinea* Haw.

It was pointed out by A. J. A. Uitewaal in Cact. en Vetpltn. V (1939) 25, that *Haw. mucronata* was published by Haworth several years prior to his publication of *Haw. altilinea,* so that, instead of *Haw. mucronata* being a var. of *Haw. altilinea,* the reverse is the case. *Haw. altilinea* and its many forms are now transferred as forms of *Haw. mucronata,* and to make this clear to those interested in Haworthias the following is a list of the names as at present known. Some of the more commonly known synonyms being given in italics.

Haworthia mucronata VAR. **typica** UITEW.	*Haw. mucronata* Haw.: *Haw. altilinea* var. *mucronata* (Haw.) Poelln.
" " " **limpida** (HAW.) UITEW.	*Haw. limpida* Haw.: *Haw. altilinea* var. *limpida* (Haw.) Poelln.
" " " " FORMA **typica** POELLN.	*Haw. altilinea* var. *limpida* forma *typica* Poelln.
" " " " " **acuminata** POELLN.	*Haw. altilinea* var. *limpida* forma *acuminata* Poelln.
" " " " " **inermis** POELLN.	*Haw. inermis* Poelln. *Haw. altilinea* var. *inermis* Poelln.
	Haw. altilinea var. *limpida* forma *inermis* Poelln.
" " " " " **inconfluens** POELLN.	*Haw. altilinea* var. *limpida* forma *inconfluens* Poelln.
" " " **denticulata** (HAW.) UITEW.	*Haw. denticulata* Haw.: *Haw. altilinea* var. *denticulata* (Haw.) Poelln.
" " " **polyphylla** (BAK.) POELLN.	*Haw. polyphylla* Bak.: *Haw. altilinea* var. *polyphylla* (Bak.) Poelln.
" " " " FORMA **minor** (TRIEBNER) POELLN.	*Haw. altilinea* var. *polyphylla* forma *minor* Triebner.
" " " **setulifera** (TRIEBNER) POELLN.	*Haw. altilinea* var. *setulifera* Triebner.
" " " **bicarinata** (TRIEBNER) POELLN.	*Haw. altilinea* var. *bicarinata* Triebner.
" " " **altilinea** (HAW.) UITEW.	*Haw. altilinea* Haw.: *Haw. altilinea* var. *typica* Poelln.
" " " **Morrisiae** POELLN.	*Haw. altilinea* var. *Morrisiae* Poelln.
" " " " FORMA **subglauca** POELLN.	*Haw. altilinea* var. *Morrisiae* forma *subglauca* Poelln.

The Huernias as a class are all of interest to the Xerophytic collectors as well as the "general practitioner." White and Sloane Vol. III, "The Stapelieae," divide the Huernias into five groups: Group I with 22 species, corolla tube not over ½ inch deep, annulus absent or indistinct; Group II with 10 species, corolla tube not over ½ inch deep, annulus apparent or prominent; Group III with 3 species, corolla tube over ½ inch deep, not contracting from the outside so that the flowers appear more or less cylindrical; Group IV with 6 species, corolla tube over ½ inch deep, contracted from the outside so that the flowers appear like a wide-mouthed bell; Group V with 3 species, stems or flowers lacking one of the following normal features—stems not more than 7-angled, flowers with both an outer and inner corona.

The genus was founded by Robert Brown in 1809 and honored Justus Heurnius (1587-1636). There are at present about 50 species and some 15 varieties of *H. macrocarpa,* etc. The flowers, like the Stapelias, have five lobes on the corolla of the flower with five smaller lobes or points. These five extra minor lobes on the regular five-lobed corolla makes the genus *Huernia* easily recognized as a group.

Although White and Sloane list 46 species, the average collector seldom finds more than 8 to 15 listed in catalogues. To date I've seen only 17 of these plants in bloom. I do not go by names until after I've seen the flower. Stems vary in cultivation so much I've become a "doubting Thomas" when plants are identified by their stems.

Local collectors, both "greenhouse" and "windowsill," are eager to acquire more of these easily cultivated plants. The average collector does not seem to know that a catalogue is only a partial list of plants that the grower handles. I show them the Johnson's Fanciers list, sent free to customers only, containing a list of special interest to collectors with both the scientific and common name. One woman asked me for the "Pimpled Dragon" which turned out to be *H. aspera.* To the uninuated, any plant of the genus *Huernia* is a "Black Dragon" a "Red Dragon," or a "Star Flower." Several varieties of *H. macrocarpa* (to which the variety *penzigii* belongs) are in cultivation. *H. oculata* is called "White Eyes" by some; I've heard it called "Dead Eyes" also which troubles me as *H. oculata* var. *rogersii* is one of my favorites.

I have *H. aspera, keniensis, macrocarpa* varieties: *penzigii, cerasina, primulina, schneideriana, oculata, hystrix, loesneriana, thureti* and *brevirostris* var. *scabra* of Group I. In Group II, I have *H. zebrina* and *insigniflora.* In Group III, I have *H. longituba.* In Group IV, I have *H. kirkii* (sold to me as a *Stapelia variegata* hybrid but the bloom has 10 points and checks with pages 942-3, Vol. III "The Stapelieae"). And in Group V, I have *H. pillansii.* My fellow collectors think I have done well to find 14 species.

My plants show a "freshing up" in late February and are in full growth by May. Buds appear in April. *H. loesneriana* is usually first (for the last two seasons). Buds on the underside of the new growth must be examined to be appreciated. Flowers have maroon stripes of papillae over yellow buff background. *H. schneideriana* and *oculata* are in bloom by the middle of June. The 14 species of this genus that I own are not all "full of blooms" as the catalogues show. But as a rule they bloom on the new stems which grow between late spring and summer (into October).

Rot is frequently met with where the plants are not well drained and the soil becomes soggy. Cut back to clean tissue, dust with sulphur, let dry for a few hours and then lay cutting on new soil with end exposed to the air. The cutting soon sends roots from the underside into the soil and the danger of rot is overcome. I lost several Stapeliads before I learned this method. Dying back of roots and top of stems is also a common complaint. I have found two causes: too lean compost and mealy bug on the roots. I give the plants a mixture of well rotted cow manure and sand as a top dressing or repot in good well-drained compost soil. Mealy bugs on the roots are best cured by taking plant out of soil, thoroughly washing roots, then dipping in alcohol and repot in clean soil. Some writers think the easiest method is to cut off all roots, dip in alcohol and treat as cuttings.

All Huernias with the exception of *H. macrocarpa* var. *arabica* are African (Eritrea, tropical and South Africa). They grow best for me in one part finely broken clay, two parts well rotted leafmold or decayed straw, and one part of wheat-size sand plus some gravel. I keep mine in smaller pots than the Stapelias so as to keep them on the dry side even when I water too often. Since buds do appear on the new growth it makes it necessary to get good firm growth as soon as possible after the winter rest period. All of my Stapeliads get plenty of strong light with four hours of morning and afternoon sunshine. Good ventilation is a must. I've kept mine in the same location for the last five years.

"Succulents for the Amateur" states on page 63, "For the window, the genus is most satisfactory. None of the Huernias are strong enough to live outdoors even in a warm climate, though *H. primulina* and others may be grown in a cold frame if covered on cold nights." My plants remain in the greenhouse the year around and they look healthy to me.

The flowers are not large but they are attractive as the spectacular Stapeliads. The largest, *H. venusta,* (Group II), is two inches in diameter. The smallest, *H. similis,* (Group I) is one-half inch in diameter. The colors are from cream-white through buff, yellow, brown, rose, maroon, purple to "black" (midnight purple). A wide range of colors for less than 50 species of this genus!

H. macrocarpa var. *penzigii,* my "plant of the month" is one of the most interesting of the genus. Called "Black Dragon" it is a profuse bloomer but beloved by mealy bugs. Because of the compact growth, numerous "teeth" and prolific off-setting, it plays host to any pest. It is the most popular plant of the genus.

White and Sloane say, "The flowers are uniformly deep purple within, blossom generously on a mature plant and when grown under glass will appear almost every month of the year. The stout stems of *penzigii* and *cerasina* can be distinguished from all the other *macrocarpa* varieties by their greater size and by their 5-7 angles. In cultivation, the stems of *H. penzigii* grow much longer than those developed in the wild state and when freely watered they branch and branch again forming thickets of extraordinary aspect."

If you think I'm too enthusiastic about Huernias get a few and then tell me I'm wrong when I say I'm a Huernia fan.

Next month I shall write about Parodias with *P. mutabilis* as the plant of the month.

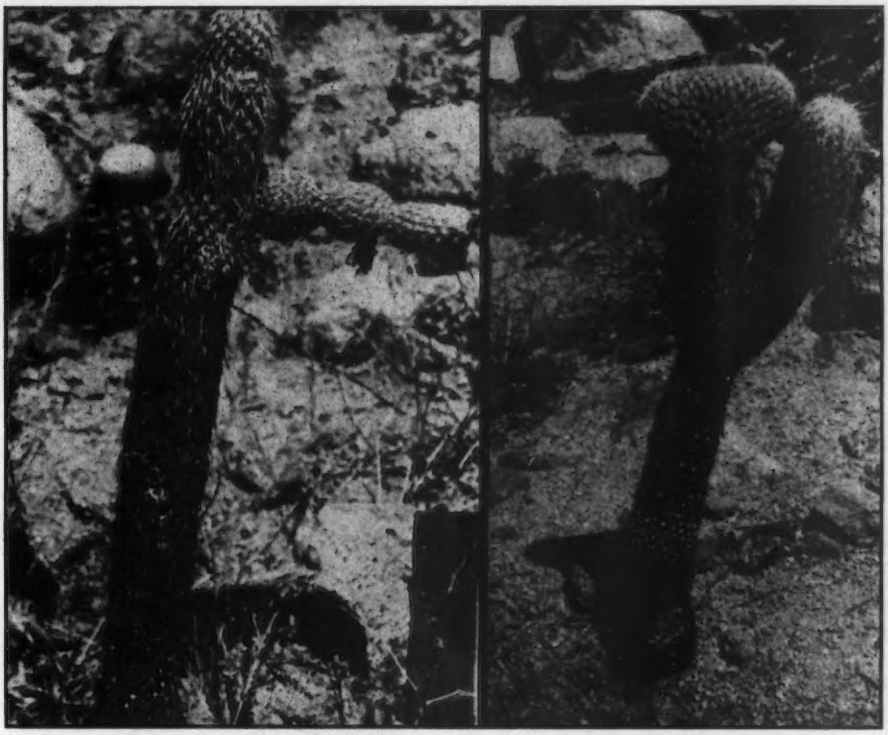

FIG. 89. LEFT: *Opuntia pachypus*, Santa Eulalia, showing proliferous fruits. RIGHT: Crest from same locality in Peru.

Interesting Opuntias in the Subulatae Series

Continued from Vol. XVIII, No. 12. Photos by Author.

By JOHN AKERS

Opuntia cylindrica D. C.

This is the most common of the two short-leaved Opuntias in the Subulatae Series. It is also a very common plant in rock gardens and in beginners' collections. The specific description in Britton and Rose's *Cactaceae* adequately covers this plant which has never been encountered growing in the wild. It flowers readily in California producing small, rosy-red blossoms on the end of a huge ovary, the size of a hen's egg. See this Jour. Vol. IV, pg. 298.

Opuntia pachypus Schumann

This species is the only really rare one in the Subulate group. At one of the California Cactus Shows it was voted the rarest cactus in the exhibit. Very little has been known about this Opuntia in the past, the modern collectors failed to re-discover it. Britton and Rose state in the *Cactaceae*, "We know this species only from descriptions and illustrations. In 1914 Dr. Rose made several unsucessful attempts to find it at Santa Clara, the type locality." As none of the more recent collectors could find this plant at Santa Clara we may perhaps assume that there was some mistake made in the type locality or it has become extinct at Santa Clara. It does occur near Santa Eulalia, however, and these two names may have been confused. On the other hand, it may have died out at the type locality as it is difficult to grow and is heavily attacked by the very destructive cactus borers. The illustration in the *Cactaceae* is a good one and clearly shows the fan-shaped tubercles. The

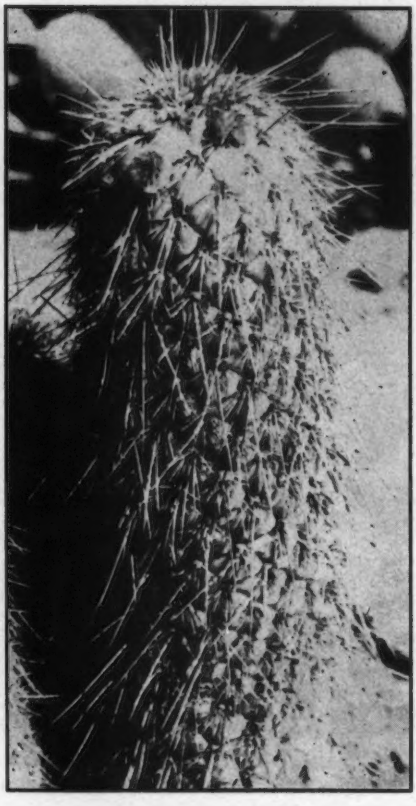

FIG. 90. *Opuntia pachypus* showing young flower buds.

plants may reach a meter in height, but usually are not over one-half meter tall. They branch sparingly near the base or above, and the branches are quite strict. The flowers are a glowing orange-scarlet and attract attention at once. The vividly colored flowers make the plants easy to find during the blooming season. The ovaries are large and constricted at the flowering end like a lemon or a Cuban guava. The fruits are proliferous and often form chains. Seeds rarely develop in the fruit, but as the latter detach easily and reproduce by vegetative means, colonies of young plants are often seen under the older ones. Should a heavy wind occur, the short-spined fruits roll over the ground for considerable distances to start new colonies. I have even seen a fruit lodged in the branches of a *Neoraimondia* growing at some distance from the nearest plant of *Opuntia pachypus* Schumann. This rare Opuntia grows exceedingly slowly and with difficulty so that it will never become more than a collector's item. Due to the heavy infestations of borers, it seems to be dying out in its native habitat. Three attractive, fan-shaped crests have been found at the Santa Eulalia occurrence. They also grow along the highway which follows the Río Chillón (Canta Road) and can be seen from an automobile without exertion if one is observant enough to notice them.

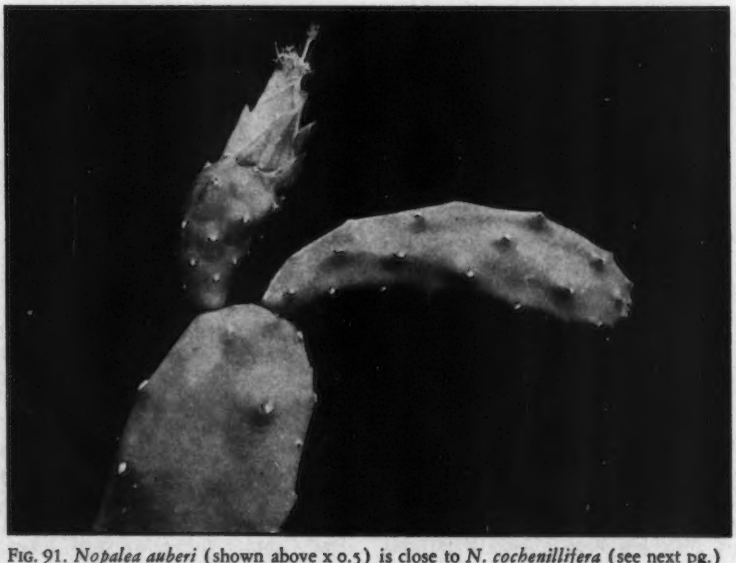

FIG. 91. *Nopalea auberi* (shown above x 0.5) is close to *N. cochenillifera* (see next pg.) because it is also almost spineless. Plant and photo by Haselton.

SPINE CHATS

LADISLAUS CUTAK

Nopalea cochenillifera is quite an interesting plant from an historical, economic and decorative standpoint. Botanically it is one of the earliest cacti to be described by Linnaeus (1753). It was a plant upon which a certain kind of insect was raised from which the famous purple dye was obtained. This certain insect, known as cochineal, is a species of mealy bug—quite tiny and covered with white cottony substance. It feeds on the plant juices stored within the succulent pads. When squashed a purple dye is obtained. The ancients of tropical America discovered the secret and their descendants used it into fairly modern times, or until synthetic dyes supplanted this natural product. When the Spaniards colonized the New World they found this thriving industry and realizing monetary gains could be gotten from it brought the trade to the Azores, Canary Islands and other insular possessions. It is claimed that only the female cochineal is capable of producing the dye and that at least 80,000 dried insects were required to make a pound of the dye.

Nopaleas are of several species and are very closely related to the Opuntias. The distinguishing characteristic is found in the flowers. The flowers of the Prickly Pears are wheel-shaped while those of Nopals are erect—their petals never opening up.

Nopalea cochenillifera is easy to grow and because it is nearly spineless it is recommended for cultivation. Furthermore it makes a good house plant, particularly if you like rugged features. It is especially recommended for dry frostless regions and will grow into a tall tree with a trunk 8 inches in diameter. If given plenty of light the Cochineal Cactus will flower regularly in greenhouses, although infrequently as a pot plant. The pads or joints are usually light green in color, oblong in shape, 10 inches or more in length, with small areoles spaced about 4 cm. apart. Often no glochids are observed because they fall off very early. Likewise there are no spines, except in rare instances, and that is why *Nopalea cochenillifera* is one of the few worthwhile *Opuntieae* to include in a house collection. Flowers appear from the tops of the joints, usually in great abundance and commence to bloom in late February or early March. Individual flowers, from base of ovary to the tip of the style, are 5 cm. long. The semi-globular ovary is 2 cm. long, with low, somewhat diamond-shaped tubercles, their areoles bearing numerous pale yellowish glochids and light brownish wool. Sepals, like petals, are erect, broadly ovate, acute, pale washed-out scarlet in color. The petals are longer, otherwise quite similar, pinkish to crimson colored toward the margins. Stamens are crimson to purplish, about 2.5 cm. long, projecting beyond the floral envelope. The white style is exserted above the stamens, and crowned with 7, light greenish stigma lobes.

* * *

I have many friends in Oklahoma City, for I've stopped in that oil town on several occasions while on my way to the deserts of our Great Southwest. Last year I gave an informal talk before the Oklahoma cactus club at the Polaski home, where I had a chance to renew past acquaintances and make new friends. During a round of visits in town, Charlie and Mary Polaski took me to the City Hall where I met the president of the local cactus club, Mr. C. L. Wiese. Mr. Wiese became attached to the City Government over 20 years ago and has served the public as Chief Clerk in the Department of Building since 1928. In that capacity he has had a vital part in enforcing the zoning, building and safety regulations. That he has held his job in many a political tournovers may be due to his popular acclaim for he has always tried to be helpful and tactful where it was necessary to work out difficult solutions in neighborhood problems.

Wiese's first cactus collection was acquired while he was in the employ of the leading florist and landscape firm in Kansas City. He had come to this country in 1901 from Esbjerg, Denmark, when his parents formed a distaste with conditions in northern Schlesvig, at that time under temporary German rule, and like other relatives sought greater opportunities in the Land of the Free. While with the Kansas firm he had ample privileges to cultivate a taste for artistry in landscaping and to this day he follows with pride Oklahoma City's growth, its Civic Center, and its beautiful homes for he feels as part of it all.

The first cactus collection, like that of most beginners, was small and the plants soon died from too much fondling and over-watering. Alas, didn't we all make this same mistake? Now he has a small greenhouse for his plants and although he favors the unusual in both cacti and succulents, which will call for a number of cristates, his selection must be limited to space available. Cacti and succulents are his chief hobby, but jointly with it he is also endeavoring to develop a "Home Beautiful" through proper planning and landscaping in color effect with flowers and foliage, xerophytes, rocks and terracing.

* * *

Chicha is a native South American beer, usually made from maize. Well-made chicha is an attractive drink, according to Dr. Hugh C. Cutler and Martin Cardenas (Botanical Museum Leaflets, Harvard University 13:33-60, no. 3, 1947). It is clear and sparkling with a flavor somewhat similar to that of apple cider and varies greatly in alcoholic content, from about 2 per cent to as high as 12 per cent. Chicha-making was studied by these authors at several villages in Bolivia. The maize grains are usually ground by hand, the flour slightly moistened with water, rolled into a ball of convenient size and popped into the mouth, where it is thoroughly worked with the tongue until well mixed with saliva. Then it is pressed against the roof of the mouth to form a single mass—roughly resembling sets of false upper teeth—and the salivated morsels are dried in the sun and sacked for storage and shipment. Salivated flour is called *muko* and commands a higher price than unsalivated flour. The muko is mixed with heated water to the consistency of jelly, other ingredients added, simmered and allowed to ferment. Occasionally the fruits of several Opuntias (airampu) are added to the chicha to give it a rich Burgundy color. The Opuntias chiefly used for this purpose are *O. sulphurea* and *O. Soehrensii*,—low prostrate species with rather thick, flat, tuberculate joints.

* * *

According to observations carried on at the Desert Laboratory in Tucson it takes about 85 years for a Ferocactus to reach a height of 4 feet.

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